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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SERL 27 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/FI 03/00797	International filing date (day/month/year) 24.10.2003	Priority date (day/month/year) 24.10.2002
International Patent Classification (IPC) or both national classification and IPC D21H27/38		
Applicant M-REAL OYJ et al.		



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 17.05.2004	Date of completion of this report 21.02.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Naeslund, P Telephone No. +49 89 2399-8614 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-17 as originally filed

Claims, Numbers

1-13 received on 15.10.2004 with letter of 15.10.2004

Drawings, Sheets

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	NONE
	No: Claims	1-13
Inventive step (IS)	Yes: Claims	NONE
	No: Claims	1-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	NONE

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1: US-A-20010045265
- D2: WO-A-02092910 (P) (Applicant: M-REAL)
- D3: WO-A-9701670
- D4: EP-A-1054100

1. Document **D1** discloses a method of producing a multi-layer fiber product by using multilayer technology (within the sense of the application in suit; see Fig. 3 in **D1**) comprising the addition of a filler (a light scattering material as calcium carbonate; see claim 7) in a surface layer (see paragraph 20). The calcium carbonate according to the teaching in this document is, though, deposited upon cellulose/lignocellulosic **fibers**. However, such fibers as is well known amongst those skilled in the art comprise to a great extent loose **fibrils** on the surface. Therefore, when fibers are treated according to **D1**, this implies also a deposition of a light scattering material on fibrils. Such fibrils on which light-scattering material particles are deposited can therefore be seen as "a filler" comprised in the surface layer according to the multi-layer product described in **D1**. Note that the wording "consists at least partially of.." in claim 1 does not exclude the presence also of fibers. The filler content of the product according to **D1**, furthermore, does not exceed 85% of the total weight of the filler (that is, calcium carbonate and the part of the wetted fibers constituted of fibrils, which is evident from claim 10).

Therefore **D1** inherently anticipates the subject-matter of claim 1. In other words the requirements of Article 33(2) PCT are not fulfilled.

- 1.1 And also if one considered the teaching in present claim 1 as restricted to an addition of a *per se* filler consisting of light scattering material and fibrils only, an inventive step can in any case not be acknowledged: To apply in a multilayer construction as described in **D1** a filler of this kind lies within the capabilities of the skilled paper maker. It comes within the scope of the customary practise followed by the persons

skilled in the art, especially as such a filler is known from **D3** (see page 1, lines 10-20; page 2, lines 25 to 37; example 1 and 2) together with the advantages thus achieved (low grammage paper, optical and/or mechanical properties; in principle the same problem is addressed as by the application-in-suit) can be readily contemplated in advance.

Accordingly, the subject-matter of claim 1 alternatively lacks an inventive step as required by Article 33(3) PCT.

2. Document **D2** was filed on 24.04.2001. Thus **before** the priority document of the present application **FI 20021899** which was filed on 24.10.02. **D2** (see page 1, line 24-line 32; page 2, line 21-line 23; page 2, line 33-line 35; page 5, line 14-line 21; claim 1; claim 7; abstract) discloses:

A method of producing a multi layer fibre product, comprising a thin base paper having a grammage of 80 g/m² at the most (see claim 7), the method comprising fitting on top of a bottom layer consisting of at least one fibre layer a second layer, which contains a filler and which forms the surface layer of the fibre product wherein the layers are formed by using "multi-layer technology" *), and the filler of the surface layer consists at least partially of cellulose or lignocellulose fibrils, on which light-scattering material particles (e.g. calcium carbonate) are deposited, the maximum content of which is 85% of the total weight of the filler (60-80%). Therefore the priority document of the present application was not the first filing, but **D2** was the first filing of the present claimed subject-matter by the applicant. The priority of the present application has therefore not been validly claimed (Art. 8(2)(a)PCT & Art. 4(C)(4) P.C.) with the effect that **D2** is to be considered prior art under Rule 64(1)(b) PCT, i.e. prior art made available before the relevant date of claim 1 which in the present case hence is the date of filing, that is 24.10.03. It follows from the foregoing that claim 1 lacks novelty under Art. 33(2) PCT.

*) The term "multi-layer technology" employed in present claim 1 does not exclude a technique comprising a couching together of layers coming from different head-boxes in the wet section of the paper machine, which would be one possible technique according to which the multilayer paper in **D2** is manufactured. The other possible

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technique would be by means of a multi-layer headbox, as described in the application-in-suit, however, to which present claim 1 is not restricted. This latter has the effect that the technique described in **D2** can be read on claim 1.

Note that independently of that previously set out, the validity of priority in view of the intermediate publication **D2** would also need to be assessed in view of the substance of the priority document to the present application; i.e. in view of **FI 20021899**. That, however, was not possible at the time of drawing up the international preliminary examination report, since no translation into English of the same was on file. Furthermore, **D2** might constitute an earlier right upon entry of national/regional (EP) phases.

3. The additional features of the dependent claims would not appear to comprise any novel and/or inventive subject-matter in view of the cited art, **D4** included, where appropriate combined with common knowledge in the field; Article 33(2) PCT/Article 33(3) PCT.
4. For the assessment of the present claims on the question whether they are industrially applicable, no particular reasoning would appear necessary to give. The industrial application would appear to be evident (Art. 33(4) PCT).

Claims:

1. A method of producing a multilayer fiber product, comprising fitting on top of a bottom layer consisting of at least one fiber layer (2; 4 – 6) a second fiber layer, which contains a
5 filler and which forms the surface layer of the fiber product (1; 3),

characterized in that

- the layers are formed by using multilayer technology, and
- the filler of the surface layer (1; 3) consists at least partially of cellulose or
10 lignocellulose fibrils, on which light-scattering material particles are deposited,
the maximum content of which is 85 % of the total weight of the filler.

2. The method according to claim 1, characterized in that the slush of pulp is layered in the headbox of a paper machine in such way that filler and additives are added to the pulp used in the surface layer/layers of the multilayer product, after which the pulps
15 are fed separated from each other to the headbox and then immediately combined before the lip of the headbox, where the jet of the pulp slush is directed to the wire.

3. The method according to claim 1 or 2, characterized by using a filler, which comprises cellulose or lignocellulose fibrils produced from vegetable fibers by refining and screening, and having an average thickness is less than 5 μm .
20

4. The method according to claim 3, characterized in that the light-scattering material particles are deposited on fibrils, which correspond to a fraction that passes a 50 mesh screen and/or whose average thickness is 0.1 – 10 μm with an average length of 10 –
25 1500 μm .

5. The method according to any of claims 1 to 4, characterized in that the light-scattering material particles are inorganic salts that can be formed from their source materials by precipitating in an aqueous medium.
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6. The method according to claim 5, characterized in that the light scattering material particles are calcium carbonate, calcium oxalate, calcium sulphate, barium sulphate or mixtures thereof.

7. The method according to any of the preceding claims, characterised in that the proportion of inorganic salts of the weight of the filler is 75 – 85 % by weight.
8. The method according to any of the preceding claims, characterised by
5 producing a three-layer fiber product, whose non-coated grammage is approximately 20 – 100 g/m², preferably approximately 25 – 60 g/m², the grammage of one surface layer being approximately 2 – 50 g/m², preferably approximately 5 – 20 g/m².
9. The method according to any of the preceding claims, characterised in that the
10 ratio of the total weight of the surface layers in relation to the weight of the middle layer (layers) weight is approximately 20/80...80/20, preferably approximately 30/70...70:30, in particular approximately 35:65...65:35.
10. The method according to any of the preceding claims, characterised in that the
15 bottom layer comprises chemical cellulose pulp.
11. The method according to any of the preceding claims, characterised in that the surface layer comprises mechanical pulp.
- 20 12. The method according to any of the preceding claims, characterised by producing a thin, multilayer base paper, whose maximum grammage is approximately 80 g/m².
13. The method according to any of the preceding claims, characterised by
25 producing a base paper of LWC paper, whereby both the bottom layer and the surface layer/surface layers comprise a mixture of chemical cellulose pulp and mechanical pulp, optionally a mechanical pulp, which is rougher than that used for forming the surface layer, being used for forming the bottom layer.